# Streetcar Design Considerations


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# Streetcar Planning

- 2007 – Streetcar Feasibility Study
- 2010 – Streetcar Funding Study
- 2011 – Entering Alternatives Analysis Process

- 2012 – Nicollet Avenue Paving
  - What should be considered now knowing that Nicollet is a corridor being evaluated for streetcars?

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# Key Considerations

- Vehicles
- Vehicle/Platform Interaction
- Platform Elements
- Geometrics
- Traction Power

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# Vehicle Considerations

- Heritage or Modern
- Single-Ended or Bi-Directional
- Single-Unit or Articulated
- Partial Low Floor or 100% Low Floor
- Capacity

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## Heritage

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Modern – Articulated

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## Modern – Articulated

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7’6” - 8’8”

## Vehicle Widths

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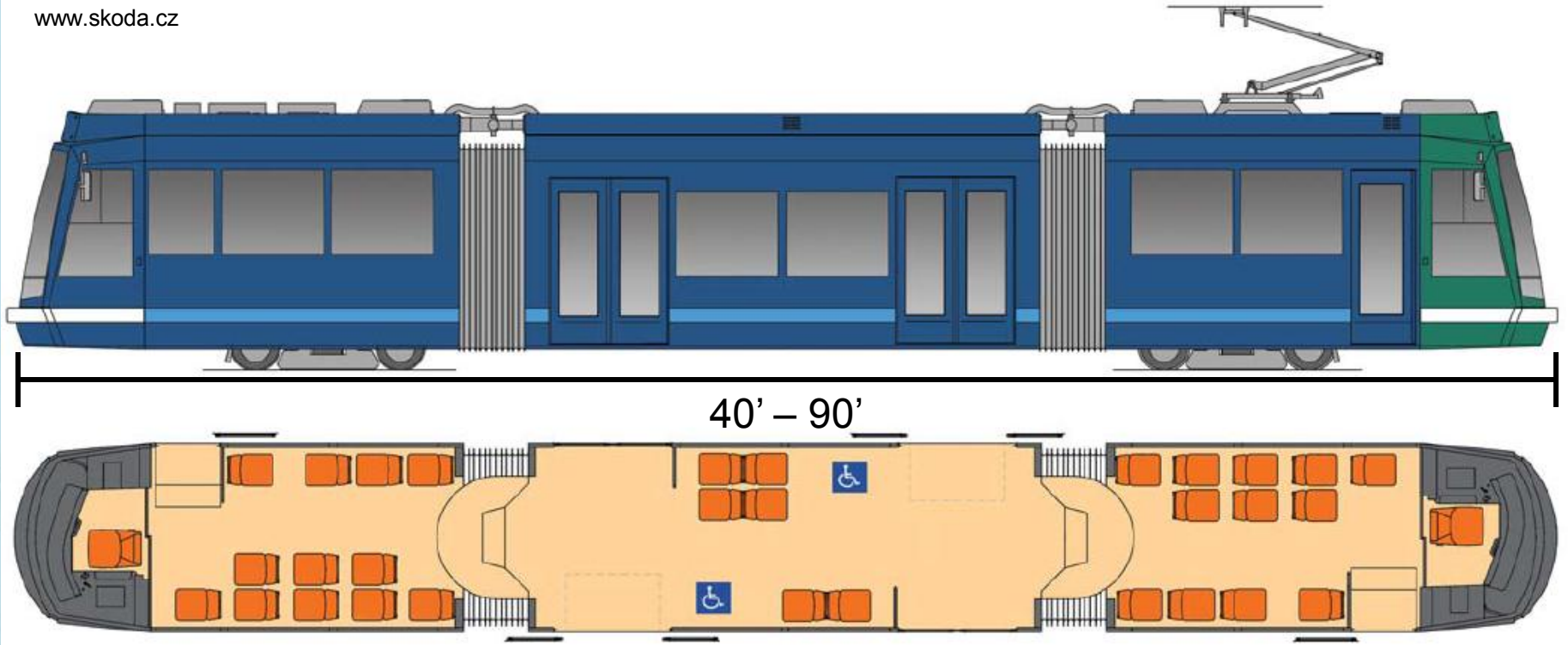
www.skoda.cz




# Vehicle Lengths

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50-150 Passengers

# Capacity

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## Partial Low Floor

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# Vehicle/Platform Considerations

- Curb Height
  - Fully Level vs. Nearly Level Boarding
  - Compatibility with Buses
- Platform Length
- Accessible Boarding Location
- Platform Edge Location

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# Bridge Plates

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## Level Boarding

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## Platform Lengths

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Parking Loss
With Bulbout: 3-5 spaces
Without Bulbout: 7-9 spaces

## Bulbout

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## Center Platform

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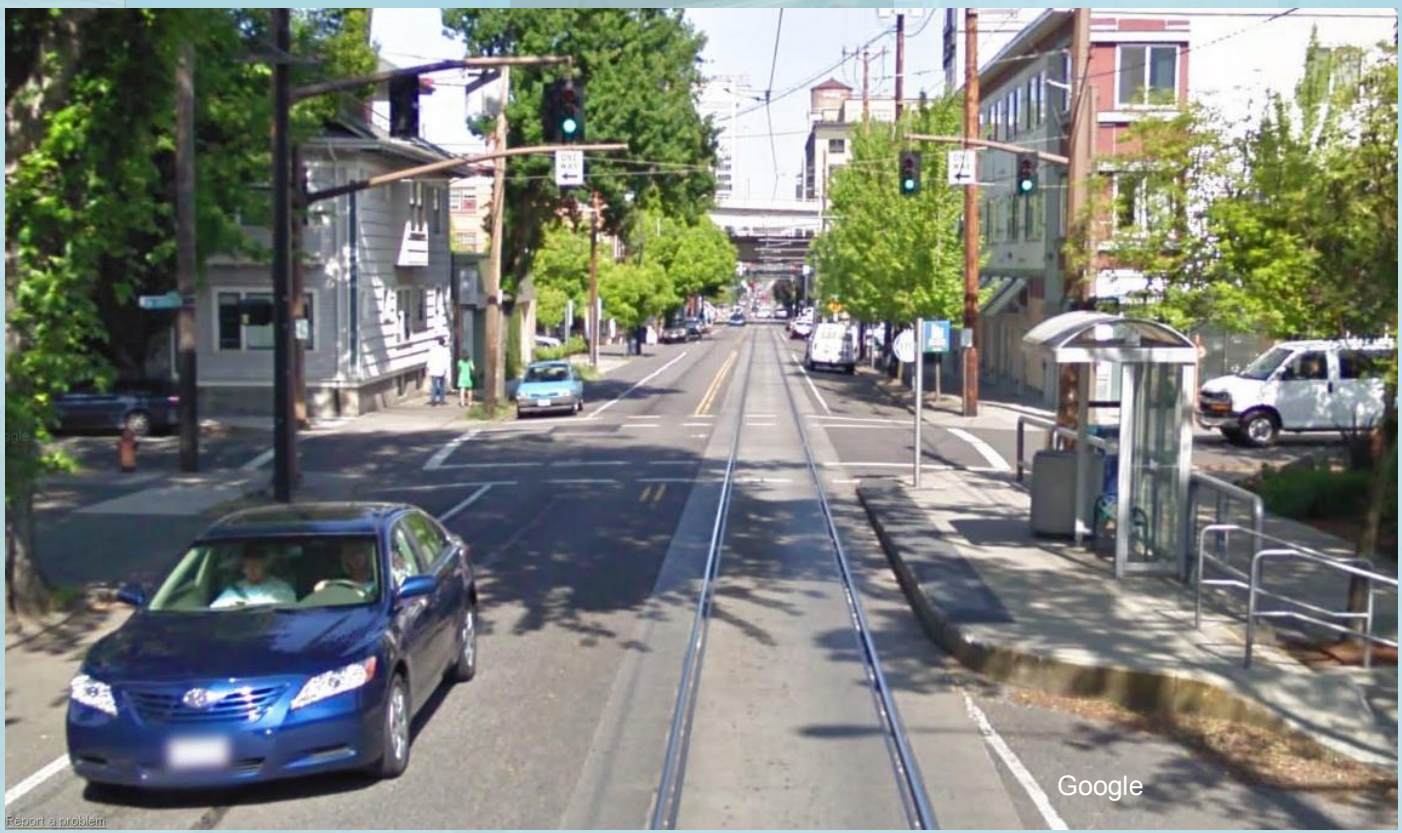


## Platform Location

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# Operational Impacts

- Loading Time
  - Short (≈ 20-30 seconds) – Minimal traffic impacts; ≈ 5% increase in delay, ≈ 15% decrease in speed
  - Long (60 seconds) – Some traffic impacts; ≈ 15% increase in delay, ≈ 20% decrease in speed
- Headway
  - Little independent effect except with long boarding times

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# Platform Elements

- Shelters
- Wayfinding
- Real-Time Information
- Fare Collection
- Security

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# Platform Amenities

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# Platform Amenities

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# Real-Time Information

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# Fare Collection

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Basic Shelter

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Large Shelter

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# Geometric Considerations

- Interaction with Traffic
- Drainage
- Vehicle Turning Radius
- Turnarounds
  - Bi-Directional Operation vs. Continuous Loop
- Storage Track

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# Roadway Alignment

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## Turning Radius

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## Lane Shift

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## Line Terminus

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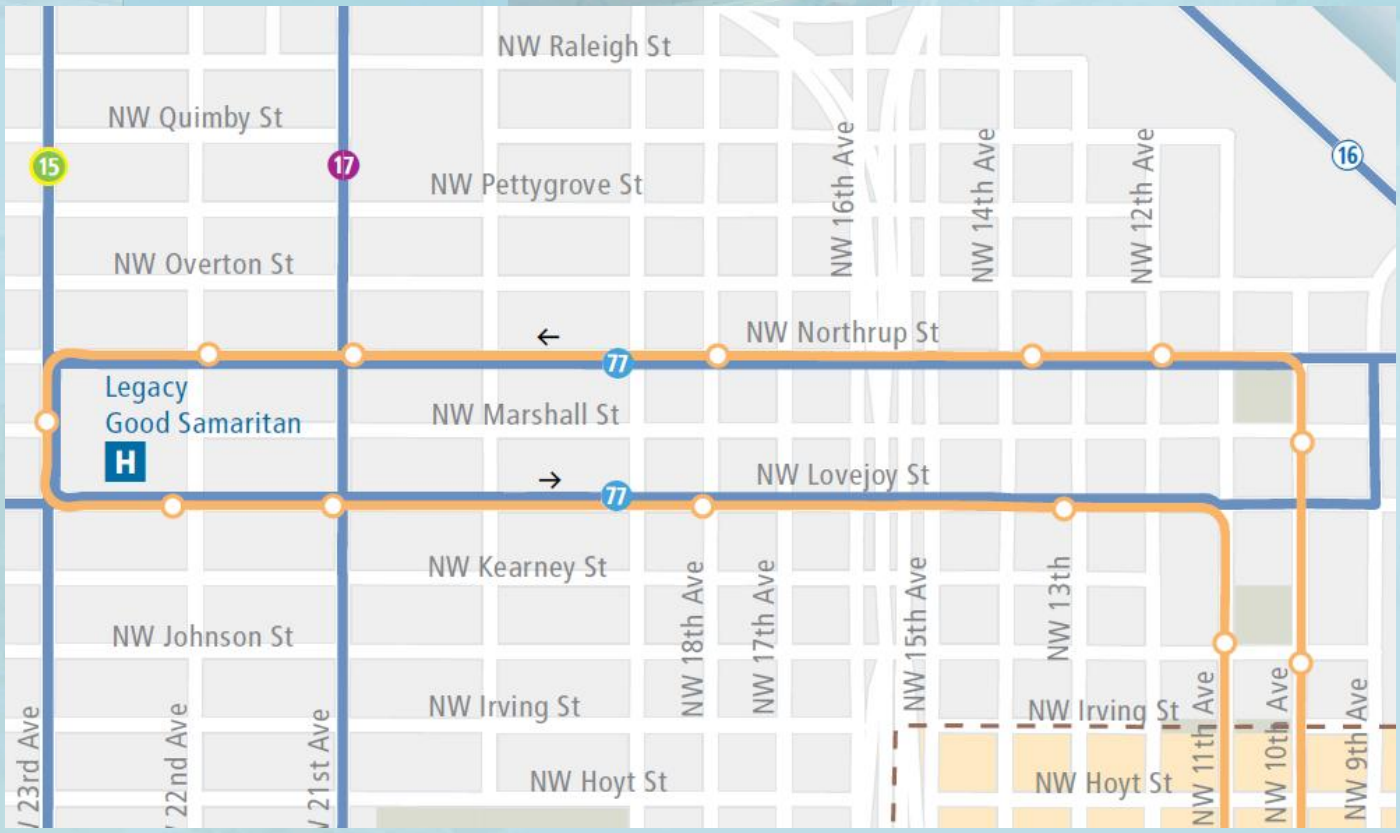


## Continuous Loop

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## Storage Track

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Crossover

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# Traction Power

- Overhead Wires
  - Poles
  - Spanwire
- Ground Level Switch Contact
- Traction Power Substations

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## Decorative Poles

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## Shared Use

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Spanwire

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# Spanwire Building Connection

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# Ground Level Switched Contact

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# Low Power Substation

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# High Power Substation

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LRT Power Substation

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# Other Considerations

- Accommodation for Underground Utilities
- Operations & Maintenance / Storage Facility

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# Questions?

- Presentation will be posted at www.ci.minneapolis.mn.us/public-works/cip/nicollet31-40/